



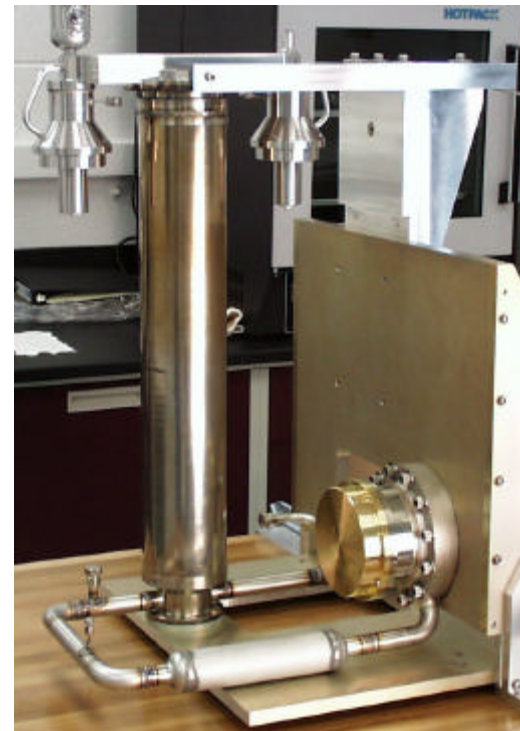
Turbo-Brayton Cooler Selected for Flight

✿ KEY FEATURES

- Miniature turbines on gas bearings
 - Turbines balanced to rotate at up to 1,000,000 RPM, eliminating vibration
 - High power density results in low mass
- Highly efficient at low temperatures
 - One to two orders of magnitude reduction in input power at 4 to 10 Kelvin
 - Will meet NGST, Constellation X and SPECS requirements at 4 to 6 Kelvin

✿ 1998 Accomplishments

- HST/NICMOS cooler flown on shuttle HOST mission
- 5 watt, 65 Kelvin cooler completed 4 years of endurance test
- Low mass heat exchanger concept demonstrated to greatly reduce cooler mass and volume



HST NICMOS Cooler